IC 2001-1 TO AFMAN 15-111, SURFACE WEATHER OBSERVATIONS

18 SEPTEMBER 2001

★SUMMARY OF REVISIONS

This change updates the publication OPR; clarifies tower visibility SPECI requirements (paragraph **2.7.10.**); corrects single element SPECI requirements (paragraph **2.7.13.**); clarifies visibility coding procedures (paragraph **3.6.2.** and **4.8.1.6.**); clarifies RVR coding and reporting (paragraph **3.6.3.**); adds procedures to disseminate RVR longline using NTFS/AMIS (paragraph **3.6.3.3.**); updates sky condition layer reporting limitations (paragraph **3.8.**); corrects AF Form 3803 recording instructions for a surface-based obscuration (paragraph **3.8.1.1.**); eliminates the use of distant cloud type remarks when SKC encoded as sky condition (paragraphs **3.8.3.1.** and **3.8.3.2.**); corrects sample AF Form 3803/3813 (figures **3.12.** and **3.13.**); clarifies procedures to disseminate corrections (paragraph **4.6.3.**); clarifies voice and back-up local dissemination procedures (paragraphs **4.7.4.** and **4.7.5.2.**); corrects the procedure for the last observation of the day (paragraph **4.8.2.**);corrects the example of longline dissemination by other stations (paragraph **4.8.6.**); clarifies general visibility observing practices (paragraph **6.3.1.**); corrects the criteria for heavy ice pellets (Table **7.3.**); corrects the proximity qualifier (VC) coding instructions (paragraph **7.2.3.6.1.**); modifies estimated pressure value requirements (paragraph **10.3.1.3.8.**); corrects the barometer removal correction computation (paragraph **10.5.5.1.** and figure **10.3.**); corrects contractions and updates volcanic eruption coding requirements (Table **11.1.**); updates ASOS augmentation policy (paragraphs **13.3.1.1. and 13.3.2.1.2.**); corrects the acronym for peak wind and changes the acronym for moved (Attachment **1**).

★OPR: HQ AFWA/XOP

★2.7.10. Tower Visibility. Transmit a SPECI with the tower visibility as a remark upon receipt of a reportable tower prevailing visibility value that meets the following criteria:

★2.7.10.1. (Added). Tower visibility must meet the reporting requirements identified in paragraph 6.2.5.

★2.7.10.2. (Added). Tower visibility differs from the weather observing site visibility by a SPECI value listed in paragraph 2.7.3.

★2.7.13. Single Element SPECI. Single element SPECIs are authorized for **Tornadic Activity** and **Volcanic Eruptions** when a delay in reporting all elements of the SPECI would cause an immediate threat to life or property.

★2.11.1.4.1. (Added) Place the remark in Column 90.

★3.6.2. Miles (Column 4B). Code and report the prevailing visibility (VVVVV) using up to five digits. Report visibility in statute miles at US locations (including Guam, Alaska, and Hawaii). When the prevailing visibility is 6SM or less, an appropriate entry must be made in column 5 for present weather. Leave a blank space between whole numbers and fractions. For example, a value of 1 1/2 miles would be recorded as 1 1/2 and disseminated as 1 1/2SM.

★3.6.3. RVR. Report both local and longline RVR data on AF Form 3803 in column 4C or on AF Form 3813 in columns 4C and 4D. Units without 10-minute average capability will record only the local RVR data in column 4C of AF Form 3803. See **Chapter 6** for detailed observing and reporting procedures. Determine code values based on an instantaneous, 1-minute, or 10-minute average reading using **Tables 6.2. and 6.3.** based on either a 250 or 500 foot baseline as appropriate. Refer to **Figure 6.3.** to determine the code breakdown.

★3.6.3.3. (Added). Currently, NTFS/AMIS software does not correctly format the longline RVRNO entry in column 4D of the AF Form 3813. Until the NTFS/AMIS software is upgraded, units must enter the runway number indicator ("R") and the runway number (e.g., 19) in the first RVR field followed by "RVRNO" in the second field. NTFS/AMIS automatically adds the solidus (e.g., R09/RVRNO).

★3.8. Sky Condition (Column 3). Code and report surface-based partial obscuration ($N_sN_sN_sh_sh_sh_s$), cloud layer(s) and obscuration layer(s) aloft ($N_sN_sN_sh_sh_sh_s$), indefinite ceilings ($VVh_sh_sh_s$) or a clear sky (SKC) in ascending order of height up to the first overcast layer. Currently, NTFS/AMIS software limits the amount of characters in column 3. Until the NTFS/AMIS software is upgraded, the sky condition is limited to a maximum of six groups. Use **Figure 8.1.** to determine layer-reporting priority. See **Chapter 8** for detailed information concerning sky condition observing procedures.

★3.8.1.1. Amount of Surface-Based Obscuration. If at least 1/8th to less than 8/8ths of the sky is not visible due to a surface-based partial obscuration, code the amount of sky hidden as FEW, SCT, or BKN followed by a height of 000 in column 3 and place a clarifying remark in column 13. For example, fog obscuring 2/8ths of the sky would be entered in column 3 as FEW000 and clarified in column 13 as FG FEW000. See **Figure 3.7.**

★3.8.3.1. Deleted.

★3.8.3.2. Deleted.

★**Figure 3.12., page 52.** Replace with updated figure. Eliminates the word "STATUTE" and the "SM" acronym in column 4B. "MILES" is the only label in column 4B on the official AF Form 3803. Adds "GMQ-32 CONT OUT" to column 90.

SURFACE WEATHER OBSERVATIONS

(METAR/SPECI)

LATITUDE	LONGITUDE	STATION ELEVATION	TIME CONVERSION	MAG to TRUE	DAY (LST)	Month	YEAR	STATION (For civil use only) & STATE or COUNTRY
38°58'N	104°49'W	6572 Feet (MSL)	(LST to + 7 Hrs. UTC) - Hrs.	+ 10 Deg. - Deg.	20	MAR	2000	ITS AFA AFLD CO

SYNOPTIC DATA

TIME (UTC) (41)	TIME (LST) (42)	NO. (43)	PRECIP. (water equiv.) (44)	SNOW FALL (45)	SNOW DEPTH (46)
Mid (LST) to:	Mid to:				
1150	0450	(1)	*.62	*6.2	6
1750	1050	(2)	.12	1.2	3
		(3)			
		(4)			
Mid (LST)	Mid (LST)				

SUMMARY OF THE DAY

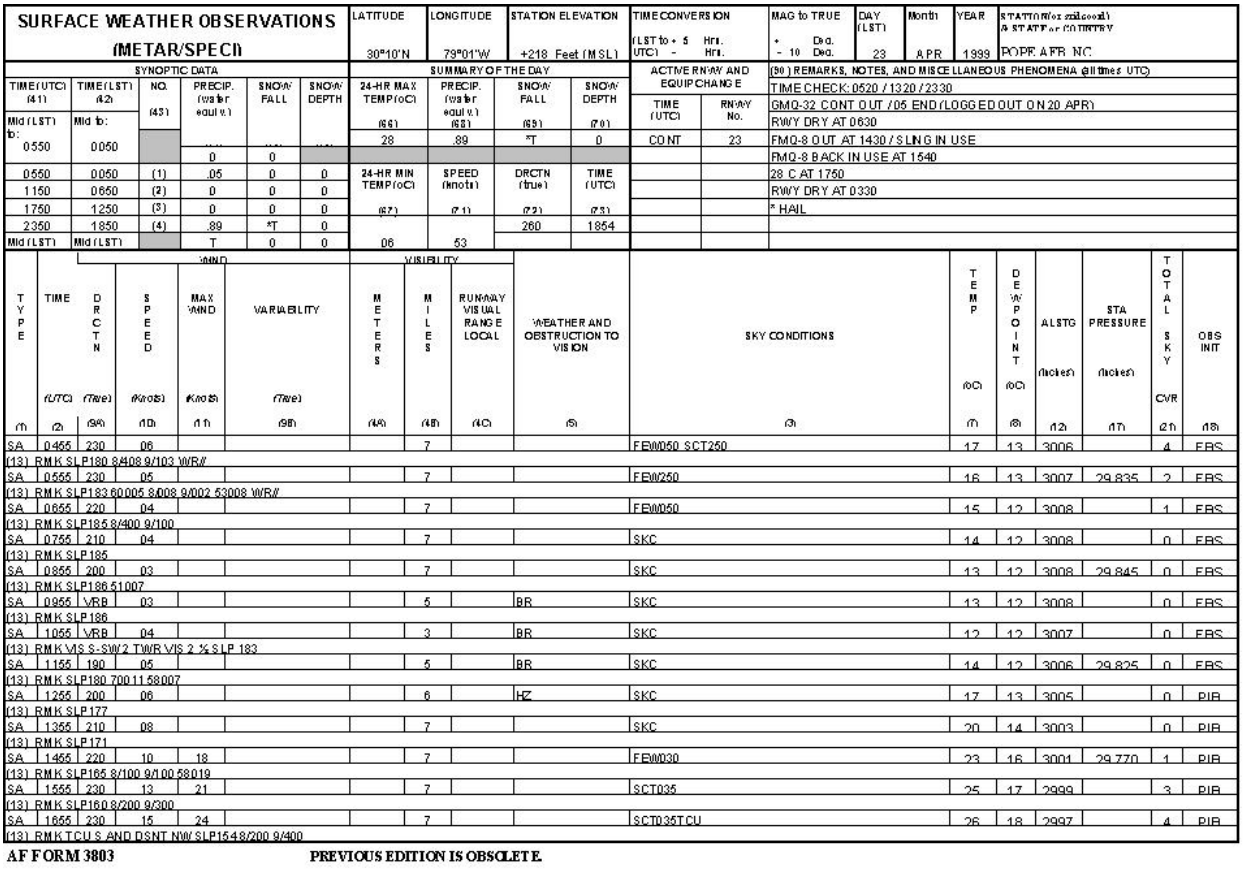
24-HR MAX TEMP (°C) (66)	PRECIP. (water equiv.) (68)	SNOW FALL (69)	SNOW DEPTH (70)
M	E .74	E7.4	6
24-HR MIN TEMP (°C) (67)	SPEED (knots) (71)	DRCTN (true) (72)	TIME (UTC) (73)
		310	1845
M	29	350	1146

ACTIVE RNWY AND EQUIP CHANGE		(90) REMARKS, NOTES, AND MISCELLANEOUS PHENOMENA (all times UTC)
TIME (UTC)	RNWY No.	TIME CHECK: 1130
1150	34	* 17-HR PCPN
		1:10 RATIO USED
		1425 - DBASI OPERATOR CHECK
		1720 - RWY DRY
		GMQ-32 CONT OUT
		PK WND 340 1130

TYPE (1)	TIME (UTC) (2)	WIND DRCTN (Tens) (3B)	WIND SPEED (Knots) (10)	WIND MAX WIND (Knots) (11)	WIND VARIABILITY (Tens) (9B)	VISIBILITY METERS (4A)	VISIBILITY MILES (4B)	VISIBILITY RUNWAY VISUAL RANGE LOCAL (4C)	WEATHER AND OBSTRUCTION TO VISION (5)	SKY CONDITIONS (3)	TEMP (°C) (7)	DEW POINT (°C) (8)	ALSTG (inches) (12)	STA PRESSURE (inches) (17)	TOTAL SKY (21)	OBS INIT (18)
SA	1155	330	19	28	300V360		1/4	RVRNO	-SN BLSN FG	VV005	M03	M03	2982	23.380	8	DS
(13) RMK VIS W 1/2 PK WND 35029/43 SLP033 ESTMD SLP 6(W 70062 E18HR 4006 5WV PCPN B FIRST																
SP	1214	350	18	24	320V020		1/2	RVRNO	-SN BLSN BR	SCT008 BKN010 OVC033	M03	M03	2983			DS
(13) RMK TWR VIS 1 PSB08																
SP	1225	360	12	18			2 1/2		-SN DRSN BR	SCT012 BKN035 OVC080	M04	M05	2985			DS
(13) RMK VIS 2\3 TWR VIS 3																
SP	1243	360	10	16			5		-SN DRSN BR	BKN035 BKN080 BKN250	M04	M06	2987			DS
(13) RMK																
SA	1255	350	08	15			7		-SN DRSN	BKN035 BKN080 BKN250	M05	M07	2990		7	DS
(13) RMK PK WND 35026/1159 PRESRR SLP113 ESTMD SLP 8(46 1 9(51 1 SB12																
SP	1325	350	11	18			12		DRSN	FEW002 FEW035 SCT080 BKN250	M04	M07	2991			DS
(13) RMK FU FEW002																
SA	1355	330	09				12			FEW100 BKN250	M02	M07	2992		5	DS
(13) RMK FU DSIPTD SLP074 ESTMD SLP 8(46 1 9(014 PSB14 HFS IR10 8(071 COR 1405																
SA	1455	320	08				12			FEW050 SCT100 SCT200	01	M06	2996	23.400	4	BL
(13) RMK ROTOR CLD 4 OCTS ACSL N-E-S SLP090 ESTMD SLP 8(0012 8(41 9(121 51037 PSB15RWET																
SA	1555	330	10				12			FEW050TCU SCT100 SCT250	02	M04	2998		4	BL
(13) RMK TCU DSNT NW ACSL N-E-S SLP070 ESTMD SLP 8(041 9(211 WB/																
SA	1655	330	10	16			12			SCT050CB BKN100 BKN250	03	M01	2999		6	BL
(13) RMK CB DSNT W-NW MOV SE ACSL N-S SLP049 ESTMD SLP 8(043 9(231 WB/																
SA	1755	330	12				10			SCT050CB BKN100 BKN250	02	00	2999	23.525	7	BL
(13) RMK CB 5 W AND DSNT N MOV SE SLP049 ESTMD SLP 80012 8(063 9(231 51012																
SP	1835	320	12	18			8		TSRA	BKN040CB BKN100 BKN250	02	00	2997			BL
(13) RMK TS OHD N MOV SE OCNL LTGCCG																
RS	1857	320	17	25	290V350		2		TSRASN	FEW020 BKN035CB BKN090 BKN250	01	M01	2996		7	BL
(13) RMK TS OHD MOV E FRQ LTGICCG PK WND 31029/46 SLP033 ESTMD SLP 8(511 9(063 WB/ LAST																

AF FORM 3803 **PREVIOUS EDITION IS OBSOLETE.**

★**Figure 3.13., page 53.** Replace with updated figure. Eliminates the word "STATUTE" and the "SM" acronym in column 4B. "MILES" is the only label in column 4B on the official AF Form 3803.



SURFACE WEATHER OBSERVATIONS (METAR/SPECI)

LATITUDE	LONGITUDE	STATION ELEVATION	TIME CONVERSION	MAG to TRUE	DAY (LST)	Month	YEAR	STATION (for civil use only) & STATE or COUNTRY
30°10'N	79°01'W	+218 Feet (MSL)	(LST to + 5 Hrs. UTC) - Hrs.	+ Deg. - 10 Deg.	23	APR	1999	POPE AFB NC

SYNOPTIC DATA

TIME (UTC) (4.1)	TIME (LST) (4.2)	NO. (4.3)	PRECIP. (water equiv.)	SNOW FALL	SNOW DEPTH
Mid (LST) to:	Mid to:				
0550	0050				
			0	0	
0550	0050	(1)	.05	0	0
1150	0650	(2)	0	0	0
1750	1250	(3)	0	0	0
2350	1850	(4)	.89	*T	0
Mid (LST)	Mid (LST)		T	0	0

SUMMARY OF THE DAY

24-HR MAX TEMP (oC) (6.6)	PRECIP. (water equiv.) (6.8)	SNOW FALL (6.9)	SNOW DEPTH (7.0)
28	.89	*T	0
24-HR MIN TEMP (oC) (6.7)	SPEED (knots) (7.1)	DRCTN (true) (7.2)	TIME (UTC) (7.3)
		260	1854
06	53		

ACTIVE RNWY AND EQUIP CHANGE		(9.0) REMARKS, NOTES, AND MISCELLANEOUS PHENOMENA (all times UTC)
TIME (UTC)	RNWY No.	TIME CHECK: 0520 / 1320 / 2330
		GMQ-32 CONT OUT / 05 END (LOGGED OUT ON 20 APR)
CONT	23	RWY DRY AT 0630
		FMQ-8 OUT AT 1430 / SLNG IN USE
		FMQ-8 BACK IN USE AT 1540
		28 C AT 1750
		RWY DRY AT 0330
		* HAIL

TYPE (1)	TIME (UTC) (2)	WIND DRCTN (true) (9A)	WIND SPEED (knots) (10)	WIND MAX WIND (knots) (11)	WIND VARIABILITY (true) (9B)	VISIBILITY METERS (4A)	VISIBILITY MILES (4B)	VISIBILITY RUNWAY VISUAL RANGE LOCAL (4C)	WEATHER AND OBSTRUCTION TO VISION (5)	SKY CONDITIONS (3)	TEMP (oC) (7)	DEW POINT (oC) (8)	ALSTG (inches) (12)	STA PRESSURE (inches) (17)	TOTAL SKY CVR (21)	OBS INIT (18)
SA	0455	230	06				7			FEW050 SCT250	17	13	3006		4	FBS
(13) RMK SLP180 8/408 9/103 WRW																
SA	0555	230	05				7			FEW250	16	13	3007	29.835	2	FBS
(13) RMK SLP183 60005 8/008 9/002 53008 WRW																
SA	0655	220	04				7			FEW050	15	12	3008		1	FBS
(13) RMK SLP185 8/400 9/100																
SA	0755	210	04				7			SKC	14	12	3008		0	FBS
(13) RMK SLP185																
SA	0855	200	03				7			SKC	13	12	3008	29.845	0	FBS
(13) RMK SLP186 51007																
SA	0955	VRB	03				5		BR	SKC	13	12	3008		0	FBS
(13) RMK SLP186																
SA	1055	VRB	04				3		BR	SKC	12	12	3007		0	FBS
(13) RMK VIS S-SW 2 TWR VIS 2 ½ SLP 183																
SA	1155	190	05				5		BR	SKC	14	12	3006	29.825	0	FBS
(13) RMK SLP180 70011 58007																
SA	1255	200	06				6		HZ	SKC	17	13	3005		0	PIB
(13) RMK SLP177																
SA	1355	210	08				7			SKC	20	14	3003		0	PIB
(13) RMK SLP171																
SA	1455	220	10	18			7			FEW030	23	16	3001	29.770	1	PIB
(13) RMK SLP165 8/100 9/100 58019																
SA	1555	230	13	21			7			SCT035	25	17	2999		3	PIB
(13) RMK SLP160 8/200 9/300																
SA	1655	230	15	24			7			SCT035TCU	26	18	2997		4	PIB
(13) RMK TCU S AND DSNT NW SLP154 8/200 9/400																

AF FORM 3803 PREVIOUS EDITION IS OBSOLETE.

★**4.6.3.** Refer to the actual time of the original observation and disseminate the report modifier, COR, in the heading to identify the report as a corrected observation.

★**4.7.4. Voice Dissemination.** Maintain instructions outlining priorities and procedures to follow for local dissemination of observations by voice relay; e.g., read back by the person receiving the data. Observations will be disseminated immediately to local ATC agencies (e.g., tower, RAPCON, GCA), then to other users as established locally. Also maintain a record (written or recording) of all the following when used to backup the LWDS during outages:

★**4.7.5.2.** When the only means of local communications is voice, follow the instructions for voice dissemination in paragraph 4.7.4.

★**4.7.5.2.1.** Deleted.

★**4.8.1.6.** (Added). Suffix visibility values with SM at US locations (including Guam, Alaska, and Hawaii), e.g., 7SM.

★4.8.2. Supplementary Identification of Observations. At limited-duty stations and gunnery ranges, identify the last observation of the day (METAR or SPECI) by adding the term LAST on AF Form 3803 or AF Form 3813 following the last element in the observation text; e.g., TCU SE LAST (**Table 11.1.** rule 33).

★4.8.6. Longline Dissemination By Other Stations. A record of longline dissemination by another station will be entered in parentheses in column 13 of AF Form 3803 or 3813. Units will identify which unit transmitted their observation longline and the initials of the individual that received the data; e.g., (BY KOFF/DM), (BY 28OWS/DTK), etc.

★6.3.1. General Observing Requirements and Practices. Visibility observations are made on the basis of normal vision; i.e., without the aid of optical devices such as binoculars or telescopes. When practical, observations should be representative of conditions at an eye level of approximately 6 feet above the ground (this is an internationally recommended practice and forms the basis for defining certain obscurations; e.g., shallow fog). Other requirements necessary to visibility evaluations are outlined below.

★Table 7.3., page 82. Replace with updated table.

Table 7.3. Estimating Intensity of Ice Pellets.

Intensity	Criteria
Light	Scattered pellets that do not completely cover an exposed surface regardless of duration. Visibility is not affected.
Moderate	Slow accumulation on ground. Visibility reduced by ice pellets to less than 7 statute miles (9999 meters).
Heavy	Rapid accumulation on ground. Visibility reduced by ice pellets to less than 3 statute miles (4800 meters).

★7.2.3. Intensity and Proximity Qualifier. Code and report light (-), moderate (no symbol), and heavy (+) intensities with all precipitation types except ice crystals (IC) and hail (GR). Code and report funnel clouds as FC and tornadoes and waterspouts as +FC. The proximity qualifier is VC.

★7.2.3.6.1. VC may be encoded in combination with showers (SH), fog (FG), blowing snow (BLSN), blowing dust (BLDU), blowing sand (BLSA), well-developed dust/sand whirls (PO), sandstorm (SS), and duststorm (DS). VC will be placed before (no space) the precipitation, obscuration, or other weather phenomena entry (i.e., VCSH, VCPO). Intensity qualifiers will not be encoded with VC.

★10.3.1.3.8. An aneroid barometer that is considered to be a *tactical* barometer.

★Figure 10.3., page 123. Replace with update figure. Corrects removal correct information and notes.

Figure 10.3. Example of ML-102 and FA-185260 (Pennwalt) Standardization

ANEROID BAROMETER STANDARDIZATION/COMPARISON

(Modified Meteorological Form 1-13 for use at AF Weather Stations) (See detailed instructions for preparation on reverse side)

STATION NAME/LOCATION	ELEVATION *(HP)*	ALTERNATE OBSERVING ELEVATION *(Hz) (MSL)*
SCOTTSVILLE AFB, AW	463'	481'

	SERIAL NO.	ELEVATION *(Hz) (MSL)*	LAST CALIBRATION DATE	DATE DUE CALIBRATION	REMOVAL CORRECTION	
DBASI	33	498'	18 May	18 Nov		
ANEROID BAROMETER	103	498'	22 May	20 Aug	BWS: 0	AOS: -.017 -.6hPa

COMPARISON NO.	YEAR 19 / MONTH AND DAY	TIME	DATA FROM ANEROID BAROMETER: OBSERVED PRESSURE		STATION PRESSURE	ALSTG	COMPARISON STD: STATION PRESSURE READING	CORRECTIONS	SUM OF CORRECTIONS	COMP NOS. SUMMED	MEAN	REMARKS	CORRECTED ANEROID READING	DIF
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	22 May		997.6				997.7	+ .1						
2	22 May		997.7				997.9	+ .2						
3	22 May		997.8				997.9	+ .1						
4	22 May		997.9				998.1	+ .2						
5	22 May		998.1				998.2	+ .1						
6	22 May		998.1				998.1	0						
7	22 May		998.1				998.5	+ .4				Disregard - Bad data		
7a	22 May		998.3				998.5	+ .2						
8	22 May		998.5				998.6	+ .1						
9	22 May		998.7				998.8	+ .1						
10	22 May		998.9				998.9	0	+ 1.1	1 - 10	+ .1	COR = + .1	999.0	.1

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NOTES:

1. This example depicts the standardization of an aneroid backup to a station DBASI. Both are located at the weather observing site.
2. Apply the alternate observing site (AOS) removal correction to the aneroid when it is in use at the AOS. Apply an instrument correction if applicable. AOS removal correction computation: (481' - 498') x .001 = -.017 (-.6hPa). The correction is negative because the aneroid is lowered when moved to the AOS. The correction used at the AOS is .1 + (-.6) = -.5 hPa (instrument correction removal correction).

★**10.5.5.1.** Subtract the old aneroid barometer elevation from the new aneroid barometer elevation. If the elevation decreased, the sign of the difference will be negative. If the elevation increased, the sign of the difference will be positive.

★**Table 11.1., page 126.** Replace with updated table. Corrects contractions in Items 1, 3, 5, and 18; and corrects Item #33.

Table 11.1. Column 13 Remarks and Order of Entry.

	When Condition Observed is a	Then Enter in Remarks Section
1	Volcanic eruption (plain language).	The following information, if known; name of volcano, latitude and longitude or direction and distance from station, date/time, size description, approximate height and direction of movement of the ash cloud and any other pertinent data, e.g., MT AUGUSTINE VOLCANO 70SW ERUPTED 231505 LARGE ASH CLOUD EXTENDING TO APRX 30000 FT MOV NE
2	Funnel cloud, tornado or waterspout in progress (see Note).	Description, time of beginning, distance (if known), direction from station, and direction of movement (if known); e.g., TORNADO 15NE MOV N, FUNNEL CLOUD 4S MOV UNKN. If the distance is unknown, but believed to be more than from the point(s) of observation, use the contraction DSNT in place of the numeric distance indicator; e.g., TORNADO DSNT E MOV SE.
3	Tornado, funnel cloud, or waterspout having ended or disappeared (see Note).	Description, time of ending, or beginning and ending, and direction of movement (if known); e.g., TORNADO MOVD N, FUNNEL CLOUD NW DSIPTD.
4	Thunderstorm begins or is in progress (see Note).	Thunderstorm (TS), distance from station (if known), direction from station, and direction of movement (if known); e.g., TS OHD MOV NE, TS 14NW MOV SE. If the distance is unknown, but believed to be more than 10 statute miles/16 kilometers from the point(s) of observation, use the contraction DSNT in place of the numeric distance indicator; e.g., TS DSNT N MOV S.
5	Thunderstorm ends (see Note).	Thunderstorm (TS), direction of movement or description; e.g., TS MOVD SE, TS DSIPTD.
6	Lightning activity.	Frequency (FRQ, OCNL, or CONS), type, and direction from station; e.g., OCNL LTGCCCG N, FRQ LTGCAIC SW-NW. Direction may be omitted if the same as TS or CB/CBMAM remark.

7	Hailstone size (GR) (see Note).	The remark GR followed by the diameter size of the largest hailstone, coded in 1/4 inch increments. For example, GR 1 3/4 would indicate the largest hailstone was 1 3/4 inches in diameter.
8	Surface prevailing visibility less than 3 miles (4800 meters) and is rapidly increasing and decreasing (variable visibility) by at least 1/2 mile (800 meters) or more during the period of observation.	VIS, followed by extremes of variability (lowest, V, and highest); e.g., VIS 1/4V1, VIS 0400V1600.
9	Variable ceiling height below 3,000 feet.	CIG followed by extremes of variability (lowest, V, and highest). For example, CIG 005V010 would indicate a ceiling varying between 500 and 1,000 feet.
10	Variable sky condition below 3,000 feet.	The sky condition and height of the first variable layer, a V to denote, variability, and the second variable layer. For example, a cloud layer at 1,400 feet varying between broken and overcast would be coded BKN014 V OVC. Another example would include CIG LWR W.
11	Sector visibility (visibility in a specified direction representing a 45-degree arc of the horizon circle) shall be reported when it differs from the prevailing visibility by one or more reportable values and either the prevailing or sector visibility is less than 3 miles (4800 meters).	VIS followed by the sector visibility; e.g., VIS SW 1, VIS SW 1600.
12	Weather observing site or tower prevailing visibility is less than 4 miles (6000 meters) and the tower prevailing visibility differs from the weather observing site prevailing visibility by a reportable value.	TWR and a visibility value; e.g., TWR VIS 2, TWR VIS 3200.
13	Peak wind speed greater than or equal to 25 knots since the last METAR. The peak wind speed remark is required even if the peak wind speed was transmitted in an intervening SPECI. The peak wind remark is not required if the peak wind occurred and/or reoccurred during the 2 (average) or 10 (maximum/overseas) minute observation period prior to the METAR (the peak wind speed will	On the next METAR the direction, the peak wind speed since the last METAR, and the time of occurrence. Encode only the minutes if the time of occurrence can be inferred from the report time (peak wind of 45 knots from 280 degrees that occurred at 15 minutes past the hour would be coded PK WND 28045/15. Encode the hour and minutes if the time of occurrence can not be inferred from the report time (peak wind of 45 knots from 280 degrees that occurred at 58 minutes past the hour (METAR already

	already be in the body of the METAR). If the peak wind speed occurred more than once during the hour, encode the latest occurrence first. Prior occurrences of the peak wind within the hour will be encoded after the first occurrence.	transmitted) would be coded PK WND 28045/1858. Multiple occurrence example: PK WND 24042/43 25042/19.
14	Wind direction changes by 45 degrees or more in less than 15 minutes with sustained winds of 10 knots or more throughout the wind shift.	WSHFT and time of beginning; followed by FROPA if reasonably certain the shift was the result of a frontal passage; e.g., WSHFT 30, WSHFT 23 FROPA. If the initial entry is not transmitted longline, enter the remark in the next observation which is transmitted longline.
15	Estimated winds.	The remark WND DATA ESTMD, to indicate the winds were obtained from a source other than primary airfield wind sensor display.
16	Surface-based partial obscuration.	The weather phenomena (w'w') obscuration causing the surface-based obscuration, the sky condition code for amount of coverage ($N_sN_sN_sh_sh_sh_s$), and a height of 000 to denote the phenomena is surface-based. For example, widespread dust hiding 3 to 4 eighths of the sky would be coded DU SCT000.
17	Layered obscuration aloft.	The weather phenomena (w'w') aloft causing the layer, the sky condition code for amount of coverage, and the height of the obscuring phenomenon aloft. For example, a 2,000 foot layer composed of 5 to 6 eighths of smoke (carried as sky condition BKN020 in column 3) would be code FU BKN020.
18	Cumulonimbus or cumulonimbus mammatus (CB/CBMAM) for which no thunderstorm is being reported.	The cloud type (CB/CBMAM), distance (if known), location, and movement (if known); e.g., CB 12W MOV E, CBMAM OHD STNRY. If the distance is unknown, but believed to be more than 10 statute miles/16 kilometers from the point(s) of observation, use the contraction DSNT in place of the numeric distance indicator; e.g., CB DSNT N MOV S.
19	Towering cumulus (TCU).	The cloud type (TCU), distance (if known), and direction from the station; e.g., TCU 18SE. If the distance is unknown, but believed to be more than 10 statute miles/16 kilometers from the point(s) of observation, use the contraction DSNT in place of the numeric distance indicator; e.g., TCU DSNT S.
20	Altocumulus castellanus (ACC).	The cloud type (ACC) and direction from the

		station; e.g., ACC SE.
21	Standing lenticular (SCSL, ACSL, CCSL) or rotor clouds.	The cloud type (SCSL, ACSL, CCSL, ROTOR), and direction from the station; e.g., ACSL W. An apparent rotor cloud north through east through southeast would be coded APRNT ROTOR CLD DSNT N-E-SE.
22	Precipitation falling from clouds that evaporates before reaching the ground (VIRGA).	VIRGA followed by the direction of occurrence from the station; e.g., VIRGA SW.
23	Pressure rising or falling at a rate of 0.06 inch Hg per hour or more, totaling a change 0.02 inch Hg or more, at the time of observation.	PRESRR or PRESFR as appropriate.
24	Snow increasing rapidly. Reported in the next METAR when the snow depth increases by 1 inch or more in the past hour.	The remark SNINCR, the inches of snow per hour, and the inches of snow on the ground. For example, a snow increase of 2 inches in the past hour with a total snow depth on the ground of 10 inches would be coded as SNINCR 2/10.
25	Condensation trails.	The remark CONTRAILS to indicate condensation trails are observed.
26	Aurora observed in the past hour.	AURBO in the next METAR (to include each subsequent METARs throughout period of occurrence).
27	Significant atmospheric phenomena not reported elsewhere.	The appropriate remark in order of significance; i.e., AEROB, unofficial weather reports, etc.
28	Sea level pressure or estimated sea level pressure; estimated altimeter.	On all METAR SLPppp where SLP is the indicator and ppp is the sea level pressure in hectopascals. For example, a sea level pressure of 998.2 hectopascals would be encoded SLP982. When missing or not available enter SLPNO. When estimated values are used, code as SLPppp and add an estimated remark, e.g., SLP982 ESTMD SLP. An estimated altimeter would be encoded ESTMD ALSTG. When both are estimated encode ESTMD ALSTG/SLP. In a SPECI, only the altimeter setting is estimated; e.g., ESTMD ALSTG.
29	Code additive data group(s).	As appropriate in hourly, 3-hourly, and 6-hourly METAR in the following order of entry: 6RRRR $7R_{24}R_{24}R_{24}R_{24}$ 4/sss $8/C_LC_MC_H$ $9/C_LC_MC_H$ $1S_nT_xT_xT_x$ $2S_nT_nT_nT_n$ 5appp. See paragraph 3.12.3 for coding instructions.
30	Runway condition (pertaining to one or dual parallel runways), state of ground, weather modification, wind speed difference between dual parallel	A remark to indicate the runway condition, state of ground, weather modification or rawinsonde data; i.e., RSC/RCR, FOG DISPERSAL, WND RWY 32R 300/10G15KT, R32R PSR12 R32L

	runways, or rawinsonde data remark.	IR10, etc.
31	Aircraft mishap remark.	The remark ACFT MSHP, but do not transmit local or longline.
32	Type of automated station (report from an ASOS).	On all METAR and SPECI indicating the report is generated from an automated system. Automated stations without a present weather discriminator will enter AO1, while automated stations with a present weather discriminator will enter AO2.
33	Last, or correction to an observation.	LAST, or COR 1010 as appropriate.
NOTE: If initial SPECI taken for the beginning and/or ending of tornadic activity, thunderstorm, or hail was not transmitted longline, include the time of beginning (B) and/or ending (E) with the current (most recent) remark in the next SPECI or METAR observation which is transmitted longline. Enter the indicator B and/or E and the appropriate time(s) immediately following the phenomena reported; e.g., TSB35 12 SW MOV E, GR B37E39 GR 3/4. These B and/or E times are entered for longline transmission only.		

★**13.3.1.1.** Non-USAF or non-US Army controlled airfields (i.e., those not owned and operated by US military authorities) may be supported by automated surface observing systems. Likewise, at USAF or US Army controlled airfields when the local ATC tower is closed, thereby designating it as a Class D or E Airspace controlled to the ground, a certified USAF automated surface observing system can be used unaugmented as the official observation. There are many locations to include ranges, training areas, drop zones, Military Operation Areas, and uncontrolled airfields where automated surface observing systems provide stand-alone weather information.

★**13.3.2.1.2.** When the Severe Weather Action Procedures (SWAP) are implemented for tornadoes, high winds, or large hail.

Attachment 1, ***Abbreviations and Acronyms*****.**

★MOV Moving
★MOVD Moved (Added)
★PK WND Peak Wind